

PATENT
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III. REMARKS

A. STATUS SUMMARY

Claims 1 – 10 are pending in the present application. Claims 9 and 10 were previously canceled. Claims 1 – 8 are rejected. Claims 10 – 14 have been added, as set forth above in Section B of this amendment.

B. SPECIFICATION

As indicated above, two paragraphs of the specification have been amended to expressly point out exemplary embodiments in which the control curves that intersect a circular throat end and a non-elliptical closed control surface of the waveguide are convex relative to a central axis of the waveguide. These amendments are believed to be fully supported by the application as originally filed. *See, e.g.*, Figures 1 – 6. Accordingly, no new matter is believed to have been added.

C. CLAIM REJECTIONS - 35 U.S.C. § 102

Claims 1 – 8 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,690,231 to Levy et al. ("Levy et al."). Applicant respectfully traverses the rejection because, as to each rejected claim, Levy et al. fails to teach each and every element or feature recited in the claim.

Claim 1 recites a "continuous three-dimensional least-energy-surface coincident with the first control curve, the second control curve, the third control curve and the fourth

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control curve that intersect a circular throat end and a non-elliptical closed control surface that defines a mouth.” According to the present application, such a least-energy-surface can minimize the presence of mathematical discontinuities in order to optimize area expansion rate. As one advantage that can result from this, the wave front remains essentially perpendicular to, and attached to, the surface of the waveguide defined by the control curves. *See, e.g.,* Specification at p. 3.

Levy et al. does not purport to teach any form of a least-energy-surface. Levy et al. teaches shaping a waveguide to define an initial chamber followed by a final chamber with similar rates of cross-sectional area expansion. In the initial chamber, the acoustic signal is expanded in a vertical direction, and in the final chamber the acoustic signal is expanded in a horizontal direction. The mere teaching of a constant rate of expansion does not necessarily also teach a “continuous three-dimensional least-energy-surface” as recited in claim 1. Moreover, it will be noted that Figures 1 and 2 of Levy et al. appear to show sharp discontinuities along the inside surface of their waveguide in both the radial and axial directions. In Figure 1 of Levy et al., a corner line appears to sharply demarcate each adjacent horizontal surface section (12, 12b) and vertical surface section (14, 14b). This is likely the result of the fact that, in either chamber, when the opposing horizontal surfaces have a slope the opposing vertical surfaces do not have a slope, and vice versa. In Figure 2 of Levy et al., a line (16) demarcates the transition between the afore-mentioned initial chamber and final chamber. At the transition (16), the outward expansion of surface (12) appears to be abruptly halted and followed by opposing surfaces (12b) having little or no curvature (i.e., no slope).

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Claims 2 - 8 depend or ultimately depend from claim 1, and therefore are distinguishable at least for the same reasons.

In view of the foregoing, Applicant respectfully submits that claims 1 - 8 are patentable under 35 U.S.C. § 102(b) over Levy et al., and therefore requests that the rejection to claims 1 - 8 be withdrawn.

D. NEW CLAIMS

New claims 11 - 14 have been added, and are believed to be fully supported by the application as originally filed. Accordingly, no new matter is believed to have been added. New claims 11 - 14 are believed to be patentable over the prior art of record. Therefore, Applicant respectfully requests that new claims 11 - 14 be entered and allowed.

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IV. CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

Respectfully submitted,

THE ECLIPSE GROUP

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